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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/810,225	03/19/2001	Keiji Ono	Q63523	6895

7590 08/15/2005

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EXAMINER	
CLEVELAND, MICHAEL B	
ART UNIT	**PAPER NUMBER**
1762	

DATE MAILED: 08/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/810,225	ONO ET AL.	
	Examiner	Art Unit	
	Michael Cleveland	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 May 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,4 and 6-15* is/are pending in the application.

4a) Of the above claim(s) *6-14* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,4 and 15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Claims 6-14 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 08/07/2003.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 3, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sigai (U.S. Patent 4,825,124, hereafter '124) and Bechtel et al. (U.S. Patent 5,998,047, hereafter '047) in view of each other.

'124 teaches mixing a manganese-doped zinc silicate phosphor with an aluminum oxide precursor and calcining to form an aluminum oxide coating (col. 21, line 44-col. 22, line 24). The precursor may be an acetylacetonate (i.e., a coupling agent with a 1,3-diketone structure) (col. 3, lines 40-49, col. 4, lines 31-53). '124 does not explicitly teach the use of aluminate phosphors, but demonstrates that its method is applicable to different phosphors that need protection (Examples).

'047 teaches aluminate phosphors that need protective coatings in order to increase their operative lifetimes (col. 1, lines 33-65), but does not teach aluminum oxide coatings.

Taking the references as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the method of '124 to have coated the aluminate phosphors of '047 because '047 teaches that the aluminate phosphors benefit from coatings that increase their lifetime, and '124 teaches coatings that extend phosphor lifetimes by protecting the phosphors from moisture.

4. Claims 1, 3-4, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kasenga et al. (U.S. Patent 4,946,707, hereafter '707) in view of Mizuta et al. (U.S. Patent 5,039,654, hereafter '654) and Bechtel '047.

Claims 1, 3, and 15: '707 teaches mixing a manganese-doped zinc silicate phosphor with aluminum nitrate and firing (i.e., calcining) to form an aluminum oxide coating (col. 2, lines 46-68).

'707 does not teach the use of an aluminum 1,3-diketone coupling agent as the precursor. However, the equivalence of nitrates to other precursors, including acetylacetonates (which have a 1,3-diketone structure), as precursors to form metal oxides is well known. See, for instance, '654, col. 2, lines 31-36. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used an aluminum acetylacetone instead of aluminum nitrate with a reasonable expectation of success and with the expectation of similar results because acetylacetonates are known equivalents to nitrates as metal oxide precursors.

'707 and '654 do not explicitly teach the use of their methods to coat aluminate phosphors, but '047 teaches that such phosphors benefit from protective coatings, as discussed above. Taking the references as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the method of '707 and '654 to have coated the aluminate phosphors of '047 because '047 teaches that the aluminate phosphors benefit from coatings that increase their lifetime, and '707 and '654 teach coatings that extend phosphor lifetimes.

Claim 4: The concentration of aluminum is critical for sufficient absorption of the aluminum (col. 2, lines 11-12). The concentration is modified by changing weight of precursor in the solutions to which the same amount of phosphor is added (i.e., by controlling the ratio of the weight of the precursor to that of the phosphor) (col. 2, lines 45-68). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have optimized the weight ratio of aluminum acetylacetonate to the phosphor through routine in order to have assured sufficient adsorption.

Response to Arguments

5. Applicant's arguments filed 5/31/2005 have been fully considered but they are not persuasive.

Applicant argues that '047 teaches away from aluminum coatings because it teaches coatings of other compounds. The argument is unconvincing because '047 does not contain a statement of inoperability necessary to rise to the level of a teaching away. The argument is also unconvincing because it does not address the teachings of the other references of methods to increase phosphor lifetimes. The teachings of '047 of particular methods of protecting phosphors in no way disguise the teachings of '707, '654, or '124 of other suitable methods of protecting the phosphors.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Cleveland whose telephone number is (571) 272-1418. The examiner can normally be reached on Monday-Thursday, 7-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael Cleveland
Primary Examiner
Art Unit 1762

8/12/2005